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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,097	08/18/2003	Warran B. Linton	71024-023	3347

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EXAMINER

AN, SANG WOOK

ART UNIT PAPER NUMBER

1732

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/643,097	<b>Applicant(s)</b> LINETON, WARRAN B.	
	<b>Examiner</b> Sang W. An	<b>Art Unit</b> 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Adam et al (US 4375441).

Regarding claim 1, Adams et al teach preparing a mixture of PTFE resin powder and a susceptor material (col 4 lines 52-59; Adams inherently teaches the use of mixture of PTFE resin and a susceptor material compositions by referring to "Encyclopedia of polymer Science and Technology. This reference discloses the addition of high-loss material such as carbon black in low-loss material such as PTFE (table 2) in order to increase the overall loss factor of the mixture and thereby make it suitable for dielectric heating); feeding the mixture into a compaction zone to at least partially compact and shape the mixture (col 9 lines 25-44); providing a continuous flow of the mixture from the compaction zone to a heating zone (col 9 lines 44-47) and heating and sintering the mixture within the heating zone by exciting the susceptor material by application of wave energy (col 9 lines 44-47 and col 3 lines 12-14)

Regarding claim 5, Adams et al teach cutting the PTFE material while the mixture is at a temperature below a sintering temperature within the heating zone but above ambient temperature (col 9 lines 62-67, Adams et al states that the distance between

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the oven an takeoff permits adequate cooling, which indicates a range between ambient temperature and sintering temperature).

Regarding claim 6, Adams et al teach that the mixture is compacted into a generally tubular form (fig 2 number 32).

Regarding claim 7, Adams et al teach that the mixture is heated by microwave energy (col 3, lines 12-14).

Regarding claim 8, Adams et al teach preparing a mixture of PTFE resin powder and a susceptor material (col 4 lines 52-59; Adams inherently teaches the use of mixture of PTFE resin and a susceptor material compositions by referring to "Encyclopedia of polymer Science and Technology. This reference discloses the addition of high-loss material such as carbon black in low-loss material such as PTFE (table 2) in order to increase the overall loss factor of the mixture and thereby make it suitable for dielectric heating); compacting the mixture (col 9 lines 25-44), and sintering the mixture by exciting the susceptor material with microwave energy (col 9 lines 44-47 and col 3 lines 12-14).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al (US 4375441) in view of Eucker et al (US 5227105).

With regard to claim 2, Adams et al teach the invention of claim 1, but do not teach drawing a vacuum on the mixture within the heating zone to extract air from the mixture. However, Eucker et al teach drawing a vacuum on the mixture within the heating zone to extract air from the mixture (col 2 lines 63-67). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use Eucker et al's vacuum in Adams et al's method of making sintered polymeric articles in order to remove unwanted air from the mixture.

With regard to claim 3, Adams et al teach that the heating zone has an initial stage for preheating and finishing compaction of the mixture prior to sintering the mixture (col 10 lines 40-45).

With regard to claim 4, Adams et al teach passing the sintered mixture through a cooling zone following the heating zone (col 9 lines 64-68).

With regard to claim 9, Eucker et al teaches drawing a vacuum on the mixture within the heating zone to extract air from the mixture (col 2 lines 63-67).

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6. Claims 1 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al (US 4375441) in view Encyclopedia of Polymer Science and Technology (vol 5 pgs 7-8).

Regarding claim 1, Adams et al teach feeding the mixture into a compaction zone to at least partially compact and shape the mixture (col 9 lines 25-44); providing a continuous flow of the mixture from the compaction zone to a heating zone (col 9 lines 44-47) and heating and sintering the mixture within the heating zone by exciting the susceptor material by application of wave energy (col 9 lines 44-47 and col 3 lines 12-14). However, Adams et al do not explicitly disclose preparing a mixture of PTFE resin powder and a susceptor material. Nevertheless Adams does teach a polymeric composition and references "Encyclopedia of Polymer Science and Technology" (col 4 lines 52-59). This reference teaches the addition of high-loss material such as carbon black in low-loss material such as PTFE (table 2) in order to increase the overall loss factor of the mixture and thereby make it suitable for dielectric heating (Encyclopedia of Polymer Science and Technology, vol 5 pgs 7-8). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use a mixture of PTFE and susceptor material such as carbon black in Adams et al's method of making sintered polymeric articles in order to obtain a PTFE mixture with high-loss factor suitable for dielectric/microwave heating.

Regarding claim 5, Adams et al teach cutting the PTFE material while the mixture is at a temperature below a sintering temperature within the heating zone but above ambient temperature (col 9 lines 62-67, Adams et al states that the distance between

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the oven an takeoff permits adequate cooling, which indicates a range between ambient temperature and sintering temperature).

Regarding claim 6, Adams et al teach that the mixture is compacted into a generally tubular form (fig 2 number 32).

Regarding claim 7, Adams et al teach that the mixture is heated by microwave energy (col 3, lines 12-14).

Regarding claim 8, compacting the mixture (col 9 lines 25-44), and sintering the mixture by exciting the susceptor material with microwave energy (col 9 lines 44-47 and col 3 lines 12-14). However, Adams et al do not explicitly disclose preparing a mixture of PTFE resin powder and a susceptor material. Nevertheless Adams does teach a polymeric composition and references "Encyclopedia of Polymer Science and Technology" (col 4 lines 52-59). This reference teaches the addition of high-loss material such as carbon black in low-loss material such as PTFE (table 2) in order to increase the overall loss factor of the mixture and thereby make it suitable for dielectric heating (Encyclopedia of Polymer Science and Technology, vol 5 pgs 7-8). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use a mixture of PTFE and susceptor material such as carbon black in Adams et al's method of making sintered polymeric articles in order to obtain a PTFE mixture with high-loss factor suitable for dielectric/microwave heating.

7. Claims 2-4 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Adams et al (US 4375441) in view of Encyclopedia of Polymer Science and Technology (vol 5 pgs 1-23) further in view of Eucker et al (US 5227105).

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With regard to claim 2, Adams et al in view of Encyclopedia of Polymer Science and Technology teach the invention of claim 1, but do not teach drawing a vacuum on the mixture within the heating zone to extract air from the mixture. However, Eucker et al teach drawing a vacuum on the mixture within the heating zone to extract air from the mixture (col 2 lines 63-67). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use Eucker et al's vacuum in Adams et al's method of making sintered polymeric articles in order to remove unwanted air from the mixture.

With regard to claim 3, Adams et al teach that the heating zone has an initial stage for preheating and finishing compaction of the mixture prior to sintering the mixture (col 10 lines 40-45).

With regard to claim 4, Adams et al teach passing the sintered mixture through a cooling zone following the heating zone (col 9 lines 64-68).

With regard to claim 9, Eucker et al teaches drawing a vacuum on the mixture within the heating zone to extract air from the mixture (col 2 lines 63-67).

***Remark***

Incorporation of "Encyclopedia of Polymer Science and Technology" cited by the current examiner as a new reference has necessitated the withdrawal of the previous final rejection by the previous examiner. The arguments presented by the applicant are directed to the previously applied prior art. Those rejections are moot in view of these new rejections.



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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang W. An whose telephone number is (571) 272-1997. The examiner can normally be reached on Mon-Fri 7 AM - 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sang Wook An  
Patent Examiner  
Art Unit 1732  
February 6, 2006

  
**MICHAEL P. COLAIANNI**  
**SUPERVISORY PATENT EXAMINER**